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Abstract of the Disclosure

Silicon carbide films are grown by carburization of silicon to form insulative
5 films. In one embodiment, the film is used to provide a gate insulator for a field effect
transistor. The film is grown in a microwave-plasma-enhanced chemical vapor
deposition (MPECVD) system. A silicon substrate is first etched in dilute HF solution
and rinsed. The substrate is then placed in a reactor chamber of the MPECVD system
in hydrogen along with a carbon containing gas. The substrate is then inserted into a
10 microwave generated plasma for a desired time to grow the film. The microwave
power varies depending on substrate size. The growth of the film may be continued
following formation of an initial film via the above process by using a standard CVD
deposition of amorphous SiC. The film may be used to form gate insulators for FET
transistors in DRAM devices and flash type memories. It may be formed as dielectric
15 layers in capacitors in the same manner.

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